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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,910	07/15/2003	David Champion	200208821-1	8961

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HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER

LEE, CYNTHIA K

ART UNIT PAPER NUMBER

1745

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/620,910	CHAMPION, DAVID	
	Examiner	Art Unit	
	Cynthia Lee	1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19,21-23 and 43 is/are pending in the application.
- 4a) Of the above claim(s) 3,4 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-16,18,19,21-23 and 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

This Office Action is responsive to the amendment filed on 6/13/2006. Claims 1-19, 21-23, and 43 are pending. Claims 3, 4, and 17 are withdrawn from further consideration as being drawn to a non-elected invention. Claims 1, 14, and 19 have been amended.

Applicant's arguments to 112, 6<sup>th</sup> paragraph have been fully considered and are persuasive. Thus, the Examiner considers the claim language of claim 19 as invoking 112, 6<sup>th</sup> paragraph.

Applicant's prior art arguments have been considered, but are not persuasive. Thus, claims 1, 2, 5-16, 18, 19, 21-23, and 43 are rejected.

#### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/13/2006 has been entered.

#### ***Specification***

The amendment filed 6/13/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The limitation "in the form

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of an unobstructed gap" is not supported by the original disclosure. The disclosure supports that there are reactant gas paths, but not "in the form of an unobstructed gap".

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 5-13, and 43 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "in the form of an unobstructed gap" is not supported by the original disclosure. The disclosure supports that there are reactant gas paths, but not "in the form of an unobstructed gap".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5-7, 9, 12, 14-16, 18, 19, 22, 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Montemayor (US 6063517).

Montemayor discloses a spiral-shaped fuel cell assembly with an outer casing. The MEA is wound several times to form a spiral bundle from the periphery of the housing to the center. The reactant path follows the spiral bundle that extends around the perimeter. The hydrogen gas enters and exits from the hydrogen injection tubes located in the periphery and the center of the fuel cell assembly. The MEA winds around the hydrogen injection tube 24 (fig. 2) at least once around the perimeter. The oxidant inlet is also associated with the outer region. (See fig. 2 and 3 and 2:25-39 and 5:13-45) The fuel path is adjacent to the anode. Refer to Fig. 1. The catalyst layer 16 is adjacent to the anode layer 14 and thus, the catalyst layer meets the claim limitation "unobstructed gap."

Although Montemayor does not expressly disclose a reactant supply connected to the reactant inlets (applicant's claims 11 and 23), a reactant supply must necessarily be present for the hydrogen gas to be flowing through the hydrogen tubes.

Montemayor discloses that the anode/cathode arrangement has a spiral shape that extends more than once around the perimeter of the exhaust region and defines a reactant having an outlet end associated with the exhaust region and an inlet end. The Office is interpreting the arrow below the arrow 22 in Fig. 3 as the exhaust region and thus, all of the byproducts and any unused reactants that exit the fuel cell assembly exit by way of the inner region (applicant's claim 19).

Regarding claims 14-16 and 18, the exhaust region defines a perimeter (tube 24). The spiral assembly extends outwardly of and more than once around the perimeter of the exhaust region. The reactant path has an outlet/ associated with the

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exhaust region and an inlet end. The spiral assembly comprises an anode, a cathode and an electrolyte. See fig. 2 and 3.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described, as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 11, 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montemayor (US 6063517) as applied to claims 1, 12, and 19 above and incorporated herein.

Montemayor discloses all the limitations of claims 1, 12, and 19. Montemayor does not disclose a byproduct outlet region comprising first and second byproduct outlet regions (applicant's claim 8). However, Montemayor discloses one byproduct outlet region and it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Although Montemayor does not disclose a curvilinear spiral shape fuel cell, Montemayor discloses a spiral shape fuel cell and the courts have held that changes in shape are a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed invention was significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See MPEP 2144.04.

Montemayor discloses that hydrogen and oxygen are supplied into the hydrogen tubes and the oxygen path. Further, an air or oxygen blower is present to inject the reactant gases. Although Montemayor does not expressly disclose a reactant supply connected to the reactant inlets (applicant's claims 11 and 23), a reactant supply must necessarily be present for the hydrogen gas to be flowing through the hydrogen tubes. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a reactant supply for the benefit of providing reactant gas to the fuel cell to make the fuel cell operable.

Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montemayor (US 6063517) as applied to claims 1 and 20 above and incorporated herein, in view of Wattelet (US 2003/0011721).

Montemayor discloses all the limitations of claims 1 and 20. Although Montemayor does not disclose a heat exchanger associated with the housing and connected to the exhaust port, Wattelet discloses a fuel cell with an integrated heat exchanger unit. The integrated heat exchanger unit exchanges heat with the air outlet to cool the fuel cell ([0008] and fig. 1). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add an integrated heat exchanger unit to the cathode exhaust for the benefit of cooling the fuel cell.

### ***Response to Arguments***

Applicant's arguments with respect to claims 14-16 and 18 have been considered but are moot in view of the new ground(s) of rejection.

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Applicant's arguments to prior art Montemayor have been fully considered but they are not persuasive.

*The Applicant requests the Examiner's comment on 2:43-49 of Montemayor.*

The Examiner disagrees with the Applicant's interpretation of Montemayor that Montemayor's anode itself is the fuel path. This interpretation would be misconstruing Montemayor.

Montemayor discloses that the anode "establishes a linear gaseous flowpath" and that the anode "serves as a self-supporting hydrogen flowpath" (emphasis added). Nowhere does Montemayor disclose that the anode itself is the hydrogen fuel path.

Further, Montemayor discloses that the anode may comprise substantially any flexible conductive material such as corrugated stainless steel. Thus, Montemayor is designating the flexible conductive material as the anode, and not the fuel nor the fuel path.

Montemayor discloses that the catalyst layers abut the anode. Considering the broadness of the term "unobstructed gap", the catalyst layer in which the reactant gas flows through is unobstructed because if the flowpath were obstructed, then the gas would not be able to flow through.

*The Applicant argues that Montemayor's unused hydrogen exits from the **outer region (tube 24)** in addition to the inner region (tube 22) (emphasis in original). The Applicant requests the Examiner's comment on arrow 24 in Fig. 3 of Montemayor.*



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The Examiner is interpreting Montemayor's tube below tube 22 to meet the claim limitation "all of the byproducts and any unused reactants that exit the fuel cell assembly exit by way of the inner region" of claim 19. The Examiner is not relying on the arrow 24 to meet the above claim limitation and thus, is irrelevant to this issue.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl

  
JONATHAN CREPEAU  
PRIMARY EXAMINER